IN THE CLAIMS:

Kindly amend claims 2 and 7 as shown in the following listing of claims, which replaces all previous listings and versions of claims.

1. (previously presented) An information recording apparatus comprising:

a probe for producing or scattering near field light for reading or recording information;

probe access means for causing a tip of the probe to access a desired region of a recording medium where the information is to be read or recorded;

probe scanning means for scanning the tip of the probe across a surface of the recording medium; and

heat radiating means for radiating heat through the tip of the probe in the vicinity of the produced or scattered near field light to heat the desired region of the recording medium to record information on the recording medium;

wherein the surface of the recording medium is provided with a thin film that varies in physical properties in response to heating of the surface by the tip of the probe.

2. (currently amended) An information recording apparatus according to claim 1; wherein the heat radiating means comprises an electric heating element <u>provided on the probe</u> for heating the tip of the probe.

3. (previously presented) An information recording apparatus according to claim 1; wherein the heat radiating means comprises a laser light source for projecting laser light through the tip of the probe.

4. (previously presented) An information recording apparatus according to claim 3; wherein the probe has a microscopic aperture at the tip thereof, and the laser light source introduces light through the microscopic aperture.

5. (previously presented) An information recording apparatus according to claim 4; wherein the tip of the probe has a metal film formed on a surface thereof except for the microscopic aperture.

6. (previously presented) An information recording apparatus according to any one of claims 1 to 5; further comprising auxiliary heat radiating means for heating the recording medium without radiating heat through the tip of the probe.

7. (currently amended) An information recording means comprising:

a probe having a sharpened tip;

probe access means for causing the tip of the probe to access a desired region of a recording medium;

probe scanning means for scanning the tip of the probe across a first surface of the recording medium; and

an illumination light source for illuminating a second surface of the recording medium opposite the first surface with illumination light so that a near field light is produced above the first surface of the recording medium for reading or recording information on the recording medium;

wherein the first surface of the recording medium is provided with a thin film that varies in physical properties in response to heating of the surface; and

wherein the illumination light is set at a first intensity insufficient to vary the physical properties of the thin film for reading information on the recording medium, and a second intensity sufficient to vary the physical properties of the thin film only when the tip of the probe accesses the desired region while the second surface of the recording medium is illuminated with the illumination light at the second intensity for recording information at the desired region of the recording medium.

8. (previously presented) An information recording apparatus according to claim 7; wherein the illumination light source further illuminates the first surface of the recording medium to produce a near field light above the first surface of the recording medium.

9. (previously presented) A method of recording information comprising:

a probe access process of causing a tip of a probe to access a recording medium to produce or scatter near field light for reading or recording information;

a probe scanning process of scanning the tip of the probe to a desired position on the recording medium; and

a heat recording process of radiating heat energy through the tip of the probe to locally heat the recording medium proximate the near field light to record information at the desired position on the recording medium.

10. (previously presented) A method of recording information according to claim 9; further comprising an auxiliary heating process of locally heating the recording medium using an auxiliary heating device that does not radiate heat energy through the tip of the probe.

11. (previously presented) A method of recording information including:

an illumination process of illuminating a desired position on a surface of a recording medium to produce near field light above the surface of the recording medium at the desired position;

a probe access process of causing a sharpened tip of a probe to access the desired position of the recording medium to record information on the recording medium by locally intensified energy caused by insertion of the tip of the probe in the near field light at the desired position; and

a probe scanning process of scanning the tip of the probe across the surface of the recording medium to the desired position on the recording medium to record the information.

12. (previously presented) A method of recording information according to claim 11; wherein the illumination process comprises a process of illuminating a surface of the recording medium opposite a surface to which the sharpened tip of the probe is accessed so as to produce near field light on the surface of the recording medium accessed by the sharpened tip.

13. (previously presented) An information recording apparatus according to claim 1; wherein the probe comprises a cantilever probe; and the heat radiating means comprises a laser light source for projecting a laser light through the cantilever probe so as to radiate the recording medium through the tip of the probe.

14. (previously presented) An information recording apparatus according to claim 13; wherein the probe has a microscopic aperture at the tip, a diameter of the aperture being smaller than a wavelength of the laser light.

15. (previously presented) An information recording apparatus according to claim 1; wherein the probe comprises a cantilever probe; and the heat radiating means comprises a heating element attached to the probe for heating the tip of the probe.

16. (previously presented) An information recording apparatus according to claim 1; wherein the probe comprises an optical waveguide probe having a waveguide portion and a sharpened tip portion; and the heat radiating means comprises a laser light source for projecting a laser light through the optical waveguide portion so that the light is projected onto the desired region of the recording medium through the sharpened tip portion.

17. (previously presented) An information recording apparatus according to claim 16; wherein the probe has a microscopic aperture at the tip portion, a diameter of the aperture being smaller than a wavelength of the laser light.

18. (previously presented) An information recording apparatus according to claim 16; wherein the probe comprises an optical fiber.

19. (previously presented) An information recording apparatus according to claim 1; wherein the thin film comprises a phase change film.

20. (previously presented) An information recording apparatus comprising: a probe having a tip for producing or scattering near field light above a surface of a recording medium for reading or recording information on the recording medium, the surface of the recording medium being formed of a material having a physical property that varies in response to the application of thermal energy thereto; means for causing the probe tip to come into close proximity with the surface of the recording medium and scanning the probe tip across the surface of the recording medium; and heat generating means for heating a desired region of the surface of the recording medium to change the physical property of the coating material in the desired region to record information on the recording medium.

21. (previously presented) An information recording apparatus according to claim 20; wherein the heat generating means heats the desired region of the recording medium to a

temperature insufficient to change the physical property of the recording medium, and insertion of the probe tip in the vicinity of the heated region of the surface locally intensifies thermal energy applied by the heat generating means to heat the recording medium in the desired region to a temperature sufficient to change the physical property.

22. (previously presented) An information recording apparatus according to claim 20; wherein the heat generating means comprises an electric heating element.

23. (previously presented) An information recording apparatus according to claim 20; wherein the heat generating means comprises a laser light source for producing a laser light for irradiating and thereby heating the desired region of the recording medium.

24. (previously presented) An information recording apparatus according to claim 23; wherein the laser light is irradiated on a surface of the recording medium opposite the surface to which the probe tip is brought into close proximity so that the near field light is produced on the surface to which the probe tip is brought into close proximity, and insertion of the probe tip in a region of the near field light produces locally intensified energy for heating the recording medium to change the physical property thereof to cause information to be recorded on the recording medium.

25. (previously presented) An information recording apparatus according to claim 23; wherein the probe tip has a microscopic aperture, and the laser light is projected through the microscopic aperture to heat a microscopic region of the recording medium.

26. (previously presented) An information recording apparatus according to claim 25; wherein the probe tip has a metal film formed on a surface thereof except for the microscopic aperture.

27. (previously presented) An information recording apparatus according to claim 20; wherein the heat generating means comprises a laser light source for producing a laser light and projecting the laser light through the probe tip to irradiate and thereby heat the desired region of the recording medium, and an auxiliary heat source for heating the desired region of the recording medium without heating the probe tip, so that the combined heat produced by the laser light source and the auxiliary heat source is sufficient to change the physical property of the recording medium in the desired region.

28. (previously presented) A method of using a scanning probe instrument to record information on a recording medium, comprising the steps of:

providing a recording medium having a coating that changes in physical characteristics in response to an applied energy;

generating near field light in the vicinity of a desired region of the recording medium at which information is to be recorded; and

causing a tip of a probe of the scanning probe instrument to come into close proximity with the recording medium at the desired region to generate sufficient energy in the desired region to record information onto the recording medium.

29. (previously presented) An information recording apparatus according to claim 1; wherein the recording medium comprises an optical phase shift recording medium, and a combined heat produced by the heat radiating means and the near field light is sufficient to cause the recording medium to reach a phase shift temperature thereof.

30. (previously presented) An information recording apparatus according to claim 1; wherein the heat radiating means heats the desired region of the recording medium to a temperature insufficient to change the physical properties of the recording medium, and insertion of the probe tip in the vicinity of the heated region of the recording medium locally

intensifies thermal energy applied by the heat radiating means to heat the recording medium in the desired region to a temperature sufficient to change the physical properties.

31. (previously presented) An information recording apparatus according to claim 8; wherein the recording medium comprises an optical phase shift recording medium, and a combined heat produced by the illumination light source is sufficient to cause the recording medium to reach a phase shift temperature thereof when the probe is in close proximity to the desired region of the recording medium.